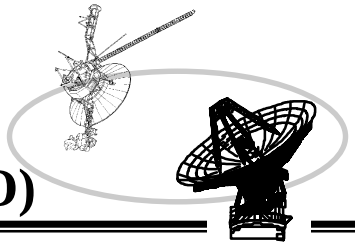
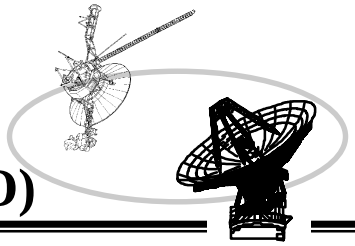


ROSETTA
Forecasted DSN Support

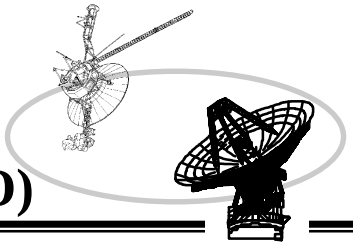
Gene Burke

October 10, 2000



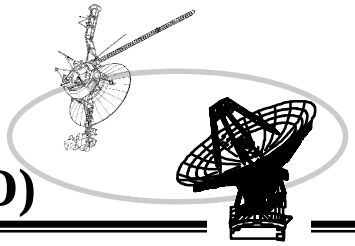
ROSETTA Mission Support

- **Mission Parameters**
  - Launch: 12 January 2003 from Kourou, French Guyana
  - Deep Space Mission to Comet 46P/Wirtanen
  - 10 Year 7 Month Design Life
    - 3 Month Launch, Early Orbit and Commissioning Phase
    - 8.5 Years Interplanetary Trajectory Phase (2003 - 2011)
    - 22 Month Near Comet Phase (2011-2013)
  - References:
    - ROSETTA Study (29 June 99)
    - PSLA (15 December 1999)
    - View Period File: 12 May 99
    - ROSETTA Review Meeting on 20 September 2000



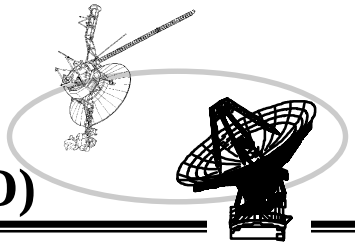
ROSETTA Mission Support

- **DSN Tracking Requirements**
  - 2003: Requested to provide supplemental coverage during the Launch, Early Orbit and Commissioning Phase at the Madrid Complex
    - » 8 Hours/Day - DSS-54 Launch Support in January (34 meter antenna)
    - » 8 Hours/Day - DSS-65,54 Support After January (34 meter antennas)
  - 2005: Requested to provide support during the Mars Gravity Assist and Earth Gravity Assist (EGA) maneuvers (August - November) from either Goldstone or Madrid
    - » 4 Hours/Day - DSS-15,65 except for EGA or DSS-24,54 Support (34 meter antennas)
  - 2006: Requested to provide support during the Asteroid "Otawara" fly-by in July
    - » 4 Hours/Day - DSS-15,65 or DSS-24,54 Support (34 meter antennas)



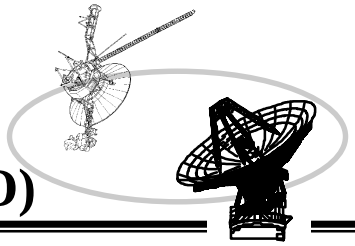
ROSETTA Mission Support

- **DSN Tracking Requirements Continue**
  - 2007: Requested to provide support during the Earth Gravity Assist maneuver in November
    - » 4 Hours/Day - DSS-24,54 Support (34 meter antennas)
  - 2008: Requested to provide support during the Asteroid "Siwa' fly-by in July
    - » 4 Hours/Day - DSS-15,65 or DSS-24,54 Support (34 meter antennas)
  - 2009: Requested to provide support for the spin up maneuver for 1 week in 2009 from either Goldstone or Canberra
    - » ? Hours/Day DSS-14,43 Support (70 meter antennas)



ROSETTA Mission Support

- **DSN Tracking Requirements Continue**
  - 2011-2013:Requested to provide supplemental coverage during the Comet Phases (November 2011 - August 2013)
    - » Up to 12 Hours/Day - DSS-15,65 or DSS-24,54 Support (34 meter antennas)
  - 2012: Requested to provide Lander delivery and Relay Phase support in September 2012 for about two weeks
    - » 24 Hours/Day per 7 Days/Week TM/TC Prime Support
    - » DSS-15,65 or DSS-24,54 Support (34 meter antennas)

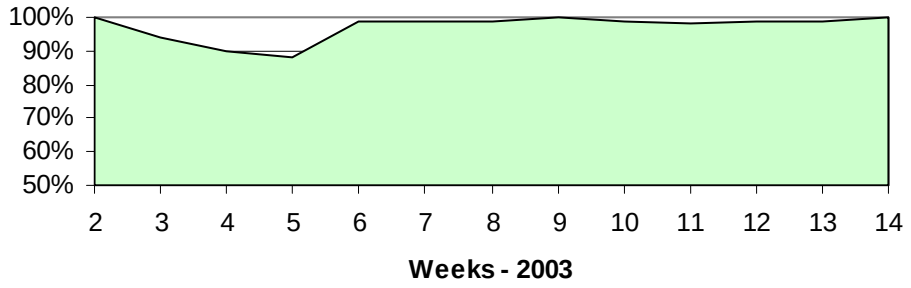


ROSETTA Mission Support

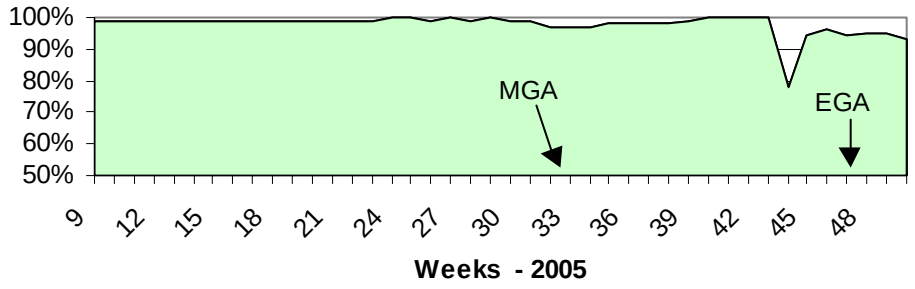
- **DSN Loading Study Results 2003, 2005-2009:**
  - Generally greater that 90%, 80%, 95%, 100%, 96%, and 100% supportable time in 2003, 2005, 2006, 2007, 2008 and 2009 respectively.
    - During weeks 2 through 5 in 2003, DSS-54 meter contentions occur with other missions requesting DSS-54 support and are in ROSETTA's view. These missions are NOZO, M01O, and ULYS. CAS is requesting DSS-65 support for their Gravity Wave experiment and is partially in ROSETTA's view.
    - In 2005, other missions requesting DSS-24 and 54 support and are in ROSETTA's view during the ROSETTA Earth Gravity Assist are M01O, M05L and STAR.

Resource Allocation Planning & Scheduling Office (RAPSO)

ROSSETTA
Forecasted Launch, Early Orbit and Commissioning
Weekly Supportable Percentage

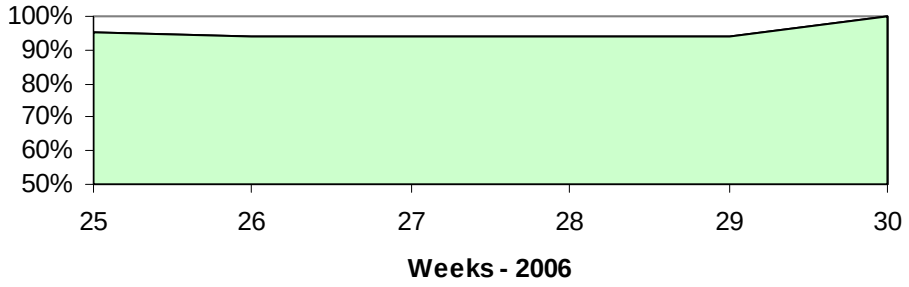


ROSETTA
Forecasted Mars and Earth Gravity Assist
Weekly Supportable Percentage

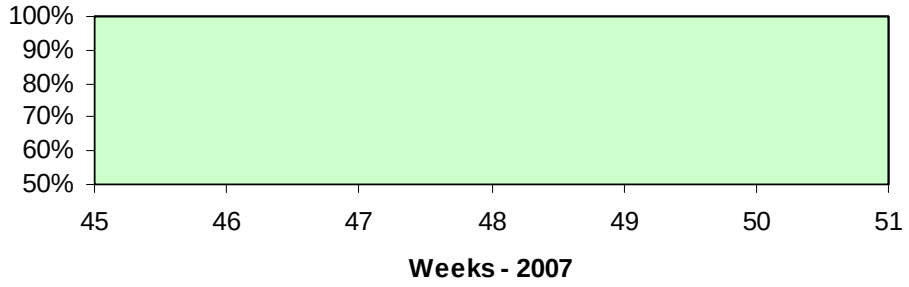


Resource Allocation Planning & Scheduling Office (RAPSO)

ROSSETTA
Forecasted Asteroid "Otawara" Fly-By
Weekly Supportable Percentage

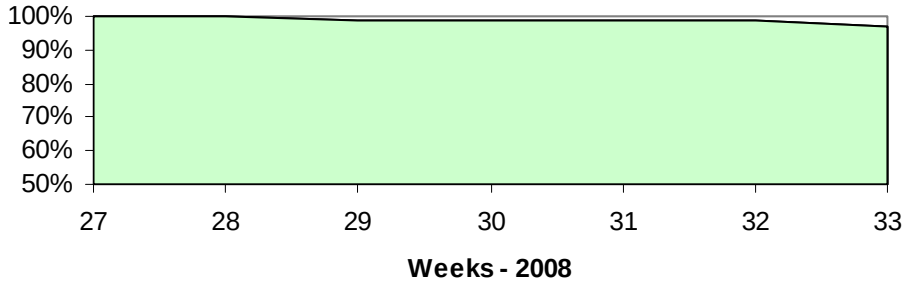


ROSETTA
Forecasted Earth Gravity Assist
Weekly Supportable Percentage

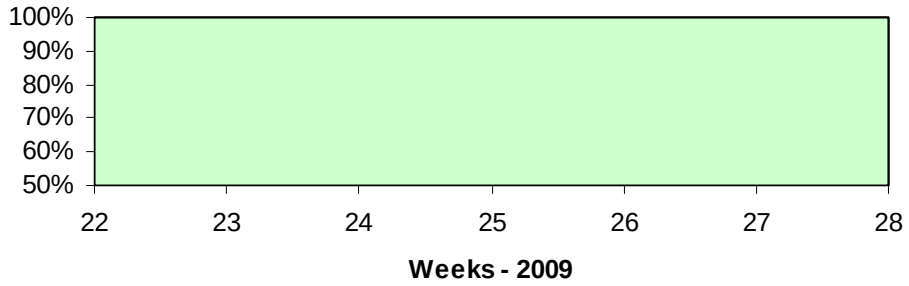


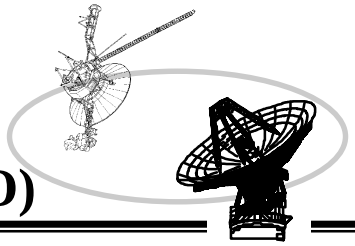
Resource Allocation Planning & Scheduling Office (RAPSO)

ROSETTA
Forecasted Asteroid "Siwa" Fly-By
Weekly Supportable Percentage



ROSETTA
Forecasted Deep Space Maneuver
Weekly SupportablePercentage





ROSETTA Mission Support

- **Comments/Questions/Requests**
  - During the Launch, Early Orbit and Commissioning Phase, ROSETTA is scheduled to receive 8-hour passes per day. This is due to view period being less than 10 hours per day. During weeks 2 through 4 can ROSETTA use DSS-66 (26 meter antenna) or DSS-63 (70 meter antenna)?
  - In 2009, how many hours and which week is 70 meter support required?
  - How flexible is ROSETTA in using either DSS-15, 65 and 24, 54 antennas?